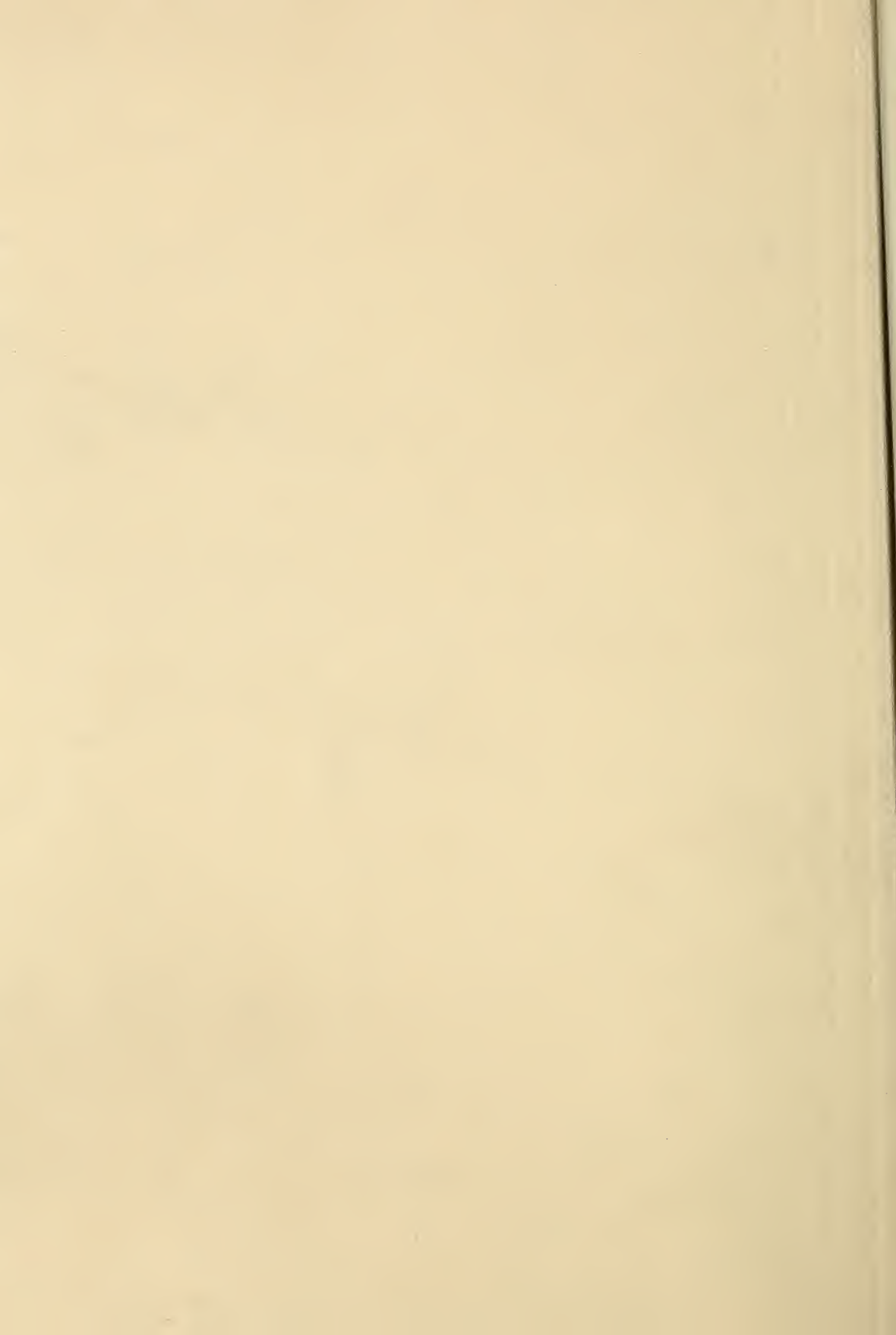


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A JOURNAL
 DEVOTED
 TO BEES
 AND HONEY
 AND HOME
 INTERESTS.

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No. 15.

FROM DR. C. C. MILLER.

JULY 15, 4439 finished sections in the house, and more to follow. [That sounds like business.—Ed.]

BEE-KEEPERS will be public benefactors if they succeed in getting farmers to learn that sweet clover is a good forage-plant.

BEE PARALYSIS has never been a very serious matter in my apiary; but there has been more or less of it for years until this year, and I'm not sure that I've seen a case this year.

IF YOU WANT an omelette to be light and nice, treat it somewhat as a griddle-cake. Use only two eggs at a time, and bring it on the table to be eaten hot before another is made.

THE BEES are making trouble in this family. For the past two years my wife has held undisturbed possession of the honey-room as an annex to her kitchen, but the crop of honey this year has routed her.

TRY TO DO without medicine if you can; but if you *must* use some one of the headache preparations, try Dr. House's yellowzones. They're as good as any, and they're made by a straight man from our own ranks.

No, SIR, friend A. I., doctors don't swear, as a rule. I've known lots of them, and I've seldom known one to swear. As a class, doctors are intelligent; and a man who swears shows that he is just so far lacking in intelligence.

WHAT A SHORT TIME of feeding makes the difference between a worker and a queen! If it is true that the same food is given during the first three days, there remain only two or three days' feeding to change the worker to a queen.

JUST AS I EXPECTED. While the wise ones were trying to explain *why* we were never to have any more good honey years, one of them was quietly getting ready to come; and the year 1896 will be remembered by many as one of the best honey years of their lives.

A PILE OF HONEY 15 supers high tumbled down for me July 15. How many of the 360 sections do you suppose were spoiled? Just five! But the thermometer stood at 95° in the shade. If it had stood at 45°, as it did two days later, nearly all would probably have been ruined.

DON'T USE ROSIN to fasten foundation in brood-frames. Some day you may want to melt up the old combs, and then the rosin will spoil the wax. Don't use it to fasten starters in sections unless you want your customers to wonder why some honey has a bitter taste.

"How USE doeth breed a habit in a man!" says Shakespear. I've tried clipping a queen's wing with a knife a few times, but made bungling work of it. With the scissors it's no trick at all. With Doolittle I suppose it's the other way. [Your knife was dull or sticky. Eh?—Ed.]

IF WEED FOUNDATION is tougher than other, won't it be tougher to "chaw" in a section? Or is it "more readily worked by the teeth" as well as by the bees? [Your last suggestion is correct. It is much less liable to stretch in drawing out than the old process, and the bees take to it quicker.—Ed.]

THE ARGUMENT in favor of clipping queens with a knife, that one always has a knife with him," doesn't count with me. I'm more sure to have scissors than knife in the apiary, for I never go without my book, and the scissors are tied to the book. [You're the only man or boy I know of that doesn't carry a knife.—Ed.]

PUT A SUPER without a bait on a hive, and the bees won't touch it till they're crowded to do so—probably several days. But if they've been in the habit of going up, it's quite another thing. Take off a full super and put in its place an empty one, and they'll commence work on the foundation right straight.

A QUEEN of the current year's raising has the reputation of being much less inclined to swarm than one older. But I find little difference between a queen raised last year and one raised this year in May. I find a great difference, however, between a queen raised this year in

May and one raised in June. The June queen is a great help toward non-swarming.

I'LL SHOUT with you, Mr. Editor, for sweet clover, only I want the whole truth to be known about it; and I doubt whether its honey can ever compete with white-clover honey. [But when you are trying to give the whole truth, don't give the impression the sweet-clover honey is bad. While it is not quite equal to white-clover, it is very good.—Ed.]

YOU'RE RIGHT, Mr. Editor, in placing much value on drawn combs in sections. But after you've made a good *start* with a super of drawn combs, I suspect there is not so much difference between combs and foundation. Raise a super half filled, and put under it a super of foundation, and I think the bees will commence on the foundation *nearly* as promptly as they would on drawn combs. [May be you are right, but I can't quite believe it.—Ed.]

I'VE KNOWN queenless bees to make good work storing honey in combs already built; but I think I never knew them to make good work at comb-building without a queen. You know you can often tell that bees have raised a young queen by the amount of white wax on the black comb. [Some comb-honey producers de-queen to prevent swarming, and yet they get lots of comb honey. Either you are partly wrong or they don't get the honey.—Ed.]

LEADING BEE-KEEPERS are, on the whole, rather conservative. Of the 21 who reply in *American Bee Journal*, only five seem to use a hot plate in fastening foundation in sections. Melted wax, the Parker fastener, a screw-driver, and rosin and wax, are used. If they'd once try it, they'd find the Daisy fastener a daisy. [Most men think their ways are better; and, right or wrong, they are not going to give the other man's method even a trial. We've learned by experience that it is best to try every thing of this kind, and we have only to find the Daisy ahead.—Ed.]

ISN'T IT TRUE that a "bait" in a super is one factor toward preventing burred and brace combs? If there's no bait, bees will crowd the brood-nest and build all around it before starting on the raw foundation in the super, whereas they'll start in a bait without waiting to be crowded into it. [We have some supers with only the bait sections filled out. When we give more baits they fill them out, but do little or nothing with the foundation. In other supers a bait is sufficient for a general start; but if *all* supers had drawn combs instead of foundation, we'd get more honey.—Ed.]

THIS YEAR keeps up its record as a fast one. I took off my first finished super of sections June 20, two or three weeks earlier than ever before. July 15 I took the fifth super from one hive. [Whewation, Doctor! Excuse slang; but as I can't throw my hat up high enough

for you so that every one can see it, I had to use something else than common English. I have several times advised you to "pull up stakes" in view of your repeated yearly failures of the honey crops; but if you had followed my advice it would have been just your luck to drop into some locality where there was no honey, not even this year. Notwithstanding my foolish advice to you, I have repeatedly advised bee-keepers to stay where they are, and the wisdom in such advice has been demonstrated again and again by a final onslaught of honey, such as you have just been having. There is no reason why you should not have a lot more such good seasons. The spell is broken; the seasons of drouths are being replaced by copious rains, so necessary to the growth of white clover. As I write, it's pouring hard, and we have been getting from one to two good rains a week.—Ed.]



I take the following clipping from the *American Bee Journal*:

Mrs. M. Louise Thomas, of Philadelphia, at the last meeting of the American Farmers' Institute Club, delivered an address on bee-keeping, in which she is reported to have said she knew of "two women who have incomes of \$5000 each, annually, selling queens." Of course, we don't like to doubt Louise's word; but in plain language we can only say we don't believe it. At least, we won't until we have some proof for it.

But this is not all. The editor goes on and gives Mrs. Thomas a large amount of garden sass for nothing. "Some proof for it," forsooth! What do you want *more* proof for? Hasn't Mrs. Thomas stated in plain words that she "*knew* of two women who have an income of \$5000 each annually, selling queens?" What more do you want? Well, I can satisfy Bro. York, and prove the truth of what Mrs. T. says. I will illustrate, and take myself for example. If I stand sidewise to the moon, and look at it at a certain angle—with my right eye—I can see 16 moons. If I get away from a lamp fifty yards or more, and look at it in the same manner, I can see 16 lamps. If I set up a silver dollar so the light will shine on it, I can see, in the same manner, 16 dollars—16 to 1. I have often attempted to secure the extra \$15 by bounding forward to gather them in. But they always elude my grasp—fade away before I get there. I always *was* unlucky, anyway.

But I never *could* convince my left eye, under the same conditions and the same angle, to see more than one moon, one lamp, and one dollar; so no false hopes or delusive dreams are ever nurtured in my gentle bosom—by my left eye.

Now, the point I want to make is, that Mrs. Thomas is 16 to 1, clear through, or, rather, in both eyes; so you see these two lady speculators in queens, from her standpoint, would not have to sell more than 200 untested, tested, and select tested queens, at 16 to 1, to make their \$5000 each per year. Now, Mr. Editor York, I think you owe Mrs. Thomas an ample apology. Tell her your remarks were strictly in a Pickwickian sense, and that your "mind was rather dwelling on the years when there was honey in the mountains," etc.

Here is a "Straw" that I don't under—no—oh, no!—that I desire Dr. Miller to explain for the good of others—if he can:

Sections made green by too much sulphur. C. Davenport remedies by soaking in water. If that loosens the sections from the wood, he gives them back to be fastened by the bees, choosing a colony that has its brood-nest full of honey.—A. B. J

What is loosening the sections from the wood, anyhow? What wood? I thought sections were *all* wood. Now, doctor, don't say this is a selection, and that you don't indorse every thing you select. If a thing is not fair and square and clear, it is your business to take hammer and chisel, and doctor it up. What else are you there for, anyhow?

THE HOME MARKET.

The editor of the *American Bee Journal*, p. 376, says: "If at all possible, dispose of all dark grades of honey in the home market." That is most excellent advice, my son, and given by the "Old Reliable," that can not err. If you have any dark stuff, or any bug-juice—the blacker the better—crowd it on to the home market. It will increase your trade and make you popular. People will smack their lips, and cry out, "Oh that I could see that honey-dealer again!" The children will stand in groups at the street corners, looking anxiously up and down to catch a glimpse of you; and when at last the twilight dews drive them weeping to their homes, nothing but a stick of candy will coax them into their little beds. People will yearn for you to come around again. In fact, it will create a passionate love for you—a longing for your society, which you will hardly understand until some fellow gets you firmly by the neck. Then you will see—no, you won't, either, for your eyes will be so bunged up that you won't be able to see any thing at all.

THE CALIFORNIA OUTPUT.

From all parts of California there comes but one monotonous and wailing cry—no honey! We have hung our harps upon the willows, and sat down mournfully in the dust. The whip-poorwill goes flashing by, unmindful of our pathetic cry. As the evening shadows gather around us the owl hoots at and mocks our misery. Not a word of sympathy have we heard from the mean and miserable East—not a word of pity or compassion has reached the Pacific shore. Yes, and postage only two cents at

that! But, never mind! next year we will "laugh at your calamity and mock when your fear cometh." We will parade your streets with drums beating and banners flying, to celebrate our victory. There, now!



NEW RACES OR SPECIES OF BEES.

THE DIFFICULTIES TO BE OVERCOME.

By W. K. Morrison.

Mr. Root:—In regard to my expedition in search of new bees, I wish to say that it would not be diplomatic to make much of a fuss about this affair. Few of your people have any idea of the obstacles in the way of getting these bees. Even as to myself, I sometimes think whether or not it would be better to try the bees of South America first, as I know more about that region. Most people think it is the lack of money that prevents our going ahead. But money is not the only necessary thing. Influence is also a great factor. Some of the tributary states are closed to white men altogether; and unless the Indian officials saw fit, a person could not enter these states. In many cases a convoy of soldiers is necessary. Again, one has to travel on steamers owned by the government, or not at all. Money has not the power that it has with us. Unless the government so orders it, the native won't help you one bit, as he has little use for money. I believe in making a clean job of it, and seeing and examining all the different bees kept by the natives. The bees of Bhotan seem to me to be the best. I expect to get the powerful aid of several scientific botanists and government officials. This is absolutely necessary. It is also necessary to get the aid of steamship companies. With the aid of these men we could get along very well. There are plenty of scientific men in these eastern countries who would know just how to assist such an enterprise.

Dr. Alfred Russel Wallace, the friend and co-worker of Darwin, is still alive, and takes great interest in bee-keeping, and is as well posted as most bee-keepers in regard to practical bee-keeping. He is the man who has told us the most about *Apis dorsata*. In fact, we could hardly ask for more than he has told us from time to time. I should not devote all my energies to bees alone, as I would examine a little into the horticulture of the East, especially in regard to palms and fruit-trees.

In some of the European museums they have splendid collections of bees, and in most cases their products. It would be necessary for me to see these specimens and see exactly what

place they come from—in fact, the exact locality—and so save all unnecessary delay afterward.

It might be necessary to go as far as Timor-Laut or Flores, in which case it would take a long time to get there. It might then be most convenient to return by way of Samoa and Panama.

The government of India is, perhaps, the most liberal one in the world toward scientific enterprise. They spend money lavishly to encourage science in agriculture. At the same time, it must be borne in mind that the religion, manners, and customs of the natives have to be respected, and Europeans are almost wholly excluded from some places on that account. It is very seldom that foreign people judge a stranger correctly, assigning all sorts of reasons for his coming except the correct one. The natives of South America used to wonder why I wasn't married. This was perhaps the most wonderful part of my story to them. What must it be with the seclusive Mohammedan and the bigoted Hindu? Perhaps they will let you take a hive away, more likely not. A man must have the patience of Job to deal with such people, and an enthusiasm that will carry him through it all. The people of India are extremely opposed to having to do with the animal world. Every animal is sacred. Only those who have had experience with bigots know how perverse a thing human nature is. It is fearful. A common British soldier caused the Indian mutiny by saying that the cart-ridges of the army were greased with lard. The fact was, he did it as a jest; and yet thousands lost their lives over such a small affair.

There are splendid botanic gardens at different places in the far East, and the aid and comfort of such could be depended on. The empire of India is a vast region, having all climates, all sorts of people, and all sorts of bees. A country with 300,000,000 people is not to be sneered at.

My experience in traveling in barbarous or semi-civilized countries is, that no hard and fast route can be laid out. To a person sitting by his own fireside, some of the troubles of travelers seem childish. Humboldt, in the city of Havana, tried for ten days to find a man or boy to climb a palm-tree for him, though he offered a good sum for the service. Only a man with an official standing is the man in the East; otherwise the native will pay no attention to his wants.

It will be necessary for me to enlist the sympathy and interest of intelligent people *en route*, and this is no easy matter, sometimes, as many would think I was going to make a fortune.

Months might be necessary to get only a little information in regard to the habits of the bees of a locality, as it is hardly to be expected that the natives will know any thing of value to us.

But these things are all problems, and can be solved only by actual attempt. I hope you will make it plain that these bees are not new *races* but new *species*. All we wish to know is, whether they are useful to us or not; when that is solved, plenty of colonies will be imported. I feel confident each attempt will bring the matter nearer a solution, and some good result therefrom.

Bermuda, June 23.

[See footnote to the former article on the subject, page 527.—Ed.]

PROFITS IN BEE-KEEPING.

THE CORRECT AND INCORRECT METHOD OF FIGURING THE COST.

By Adrian Getaz.

Figures can not lie; but if you put the wrong figures in a sum, you will get the wrong result, precisely because figures can not lie. In GLEANINGS for April 1 is the following from Mr. Clayton:

"Suppose we rate the two-story hive (empty) at 75 cts.; the drawn combs are, for purposes of income, well worth 75 cts. each; 19 combs to hive is \$11.25; bees, say 4 pounds, which would be a fair colony at the beginning of the season, at 50 cts. per pound, \$2.00. Total value of hive ready for business, \$14.00.

"Years of records kept by individuals in average locations tend to show that the average annual production does not exceed 70 pounds of honey and $\frac{1}{2}$ pound of wax per colony. Your cash outlay for your colony will be, for case and can for your 70 pounds of honey, say 45 cts.; labor, 60 cts.; freight, 70 cts.; commission, 18 cts. Now let us see what we have, estimating honey at 5 cts. in the market:

70 pounds of honey.....	\$3 50
$\frac{1}{2}$ pound of wax.....	11

Total	\$3 61
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"Our expenses will be:

Interest on \$14.00 at 8 per cent.....	\$1 12
Cost of case and can.....	45
Labor.....	60
Freight.....	70
Commission.....	18

Total	\$3 05
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"That shows a net profit of 56 cts. from our colony. Your honey has cost you a fraction over $4\frac{1}{2}$ cts. per pound. At 5 cts. per pound, the producer who gets his range free, and successfully dodges the tax collector, will, if he produces and markets 20,000 pounds, have the munificent sum of \$130.00 with which to buy himself a pair of overalls and a year's grub for the wife and babies."

The fault in the above is, that it leaves the impression upon the mind of the reader that, after the honey is sold and all the expenses paid, there will be only \$130.00 left. But this is

wrong; for the interest on the value of the above colony is not an item to be paid in cash, neither is the labor of the apiarist; so, after all, the only actual cash expenses are

Cost of case and can....	70
Freight.....	45
Commission.....	18

Total: \$1 33 instead of \$3 05.

This makes an actual cost, so far as cash expenses are concerned, of nearly 2 cts. per pound; and if the 20,000 pounds of honey are sold at 5 cts., there will be \$600.00 left to the apiarist to buy "a pair of overalls and a year's grub for the wife and babies."

This is not all. The above calculation is based on a supposition of an annual yield per colony of 70 pounds and a total yield of 20,000 pounds. This gives 285 colonies only; but an active man ought to be able to take care of three or four times that number.

Further on, Mr. Clayton states that the honey sold by the bee-keepers for 4 or 5 cts. is retailed out for 8 or 10 cts. per pound, and suggests that the difference is too great. Perhaps it is; yet we must remember that the grocer who sells your honey has a great many expenses to meet—license, clerk's salary, store rent, delivery-wagon, book-keeping, collecting, etc., and, what is worse yet, losses from people who fail to pay for what they buy. If, before reaching the retailer, your honey has to pass through the hands of two or three commission or wholesale merchants, the discrepancy between the price paid by the consumer, and the price received by the bee-keeper, will necessarily be considerable.

As to the best method of selling, sell as much as possible in your home market. Peddling will do if only a small crop is to be disposed of, and if the apiarist has nothing better to do. As a rule, it takes too much time in proportion to the amount sold. For my part, I should prefer to keep more bees, and work in the apiary, instead of spending most of my time in peddling out a smaller crop.

To avoid unnecessary expenses, sell directly to the grocers of your nearest cities. Do not sell too much to any one until you find out whether he is reliable, unless, of course, it be a cash sale. In the beginning you will have, in most cases, to begin by leaving a few pounds to be sold on trial, and returned to you if not found satisfactory. After a line of customers is established, it will be as easy to dispose of a large crop that way as it would be to send it to a commission merchant; and you will not only save the commission, but probably get a little above the market price, provided, of course, your honey is not too bad or badly put up.

WHY THE PRICE OF HONEY IS NEARLY INFLEXIBLE.

The question has been asked lately why the price of honey is now almost invariable, no

matter whether the crop is large or small. The answer is not hard to give. Glucose (or, rather, corn syrups) are now produced in enormous quantities, and sold at a close margin. As they can be produced in unlimited quantities, their price can not vary, even if the demand should increase. The result is, that the price of honey is governed by the price of the corresponding quality of the corn syrup. I say "corresponding quality," because there are different qualities of corn syrup as well as different qualities of honey. As the honey is decidedly superior it will always sell a little above the corn syrup, but not much; for if the difference were too great, people would rather buy the somewhat inferior substitute. On the other hand, should the production of honey increase considerably it would not decrease the price materially, but simply displace a corresponding quantity of syrup, from the fact that at equal or even slightly superior prices, people will take honey in preference.

Knoxville, Tenn.

[Your criticisms on Mr. Clayton's method of figuring out the cost are well taken from a business standpoint. Mr. C. also, as I have previously pointed out, placed too large a value on drawn combs; namely, "75 cts. for purpose of income." He should put down only their market value, or what they can be replaced for.—Ed.]

IS THE CALIFORNIA HONEY CROP A FAILURE?

THE HONEY EXCHANGE AND ADULTERATION.

By W. A. H. Gilstrap.

"The honey season in California, we are told, is practically a failure all along the line. Eastern honey will have little if any competition from the Pacific coast."

So reads an editorial in GLEANINGS for July 1st. This mistake is pardonable in an Eastern editor when a California writer (Rambler) says on page 487, *Am. Bee Journal*, 1895, that California honey is produced before the Eastern markets are established.

To enlighten the above, let me say that we have a place in the Golden State that we call the San Wau-keen Valley (spelled, or, rather, misspelled, "San Joaquin." This part of the State is not considered in the above, and yet we produce honey every year. The king of honey-producers in this valley is Mr. Daugherty, of Bakersfield, with only 1400 colonies. I am told. I know perhaps 20 men who produced over 8 tons each last year. Bees are now fairly started on storing surplus, which was not true one year ago. What I mean by "fairly started" is for all stocks to be at work and surplus being removed from the stronger ones. The season closes anywhere from Aug. 30 to Oct. 5, depending on season and locality. Perhaps you will see from 20 to 40 cars of our honey beyond the Rockies later in the season, which would keep

California in the ring until the southern part of the State gets another crop.

I don't know of any "bug-herder" who is getting rich very fast just now. Many are tying up to the Honey Exchange, and the future will reveal the wisdom or lack of wisdom in so doing. I for one do not fancy the idea of selling some honey at 3 cents, and giving the rest away as tare to a set of men who love us as a cannibal loves his latest prisoner. I hope the courts will settle the adulteration question. So much talk on the subject is no good. We sell some honey to a merchant or commission Shylock, and then toot our horn full blast to the consumers (of course they hear it), "That stuff is adulterated. I know there is but little honey in it. Toot! toot! Here is some more just as good." Common sense would suggest something like the California Honey Exchange; but so many will let it alone that it seems necessary for the courts to decide there is no adulteration practiced, or else punish those who do it.

Caruthers, Cal., July 10.

INDOOR VS. OUTDOOR WINTERING.

A PROPOSITION FOR DR. MILLER; WINTERING EXPERIMENTS AT THE MICHIGAN EXPERIMENT APIARY.

By Hon. George E. Hilton.

Dear Ernest :—Referring to your footnote in *Stray Straws*, p. 488, I will say I am willing, for the sake of giving this matter of outdoor wintering a thorough test, to send to Dr. Miller or any other responsible bee-keeper 10 hives, either made up or in the flat, as may be preferred. They are to put good prime colonies into them, with not less than 25 lbs. of stores. If the loss in them is greater than the loss in the cellar by May 1st, then I will pay for the entire loss; if not, then the parties shall pay me for the said hives at catalog prices. But I don't want them set on the south side of some building, as does Taylor, where the warm rays of every sunshiny day will arouse the bees and entice them out only to be chilled, and never return to the hive. No, I think the so-called experiment at our experiment station in wintering outdoors a very unfair one. Mr. Taylor has a splendid place to winter outdoors, right in his yard, and there the bees should have been left.

By the way, I should like to know how Dr. C. C. Miller knew that the experiments at the Michigan Experiment Station relative to outdoor wintering were a failure. Not one of the six chaff hives at the Agricultural College was taken to Lapeer; and I question whether, at the time of the doctor's writing, an effort had been made to winter outdoors. I wrote Mr. T. J. Butterfield, Secretary of the State Board of Agriculture, some three months ago, asking how many colonies were put into the cellar at the college in the winter of 1892, and how many

were left on summer stands; but he has not replied to my letter. I also asked him how many they had in the spring of 1893. I was appointed a sort of legislation committee by the State Bee-keepers' Association, to look after matters in general. Among the other things I did was to go out to the college one day in the spring of 1893, and look over the apiary. The bees had then been out of the cellar some time. If my memory serves me correctly, there were, in the fall of 1892, 46 colonies placed in the cellar, and 6 colonies left outdoors in as many different kinds of double-walled hives. Again, if my memory serves me right, I found only 22 alive, and some of them very weak, in single-walled hives; but the 6 in the double-walled hives were all alive and in good condition. The above seems to be verified by a letter from friend Taylor, bearing date of March 24, 1896, in which he says:

Friend Hilton :—In answer to inquiries in yours of yesterday, I would reply as follows: I received no bees from the State, in chaff hives, and have none now in chaff hives. In single-walled hives I received 22 from the State, and have the same number now, belonging to the State.

R. L. T.

I do not know what became of the 6 in chaff hives. Perhaps they were transferred into the single walled hives when moved from the college station. If so, then the 46 put into the cellar must have dwindled down to about 16. One of my hives has stood in the college yard for the past 12 years; and up to the time of Prof. Cook's going away I had never lost a colony. In the mean time I will venture the assertion that over 200 have died in the college beecellars that have cost our State hundreds of dollars.

There is much more that might be said in regard to this matter, and it is all in favor of double-walled hives and outdoor wintering; but if you should publish this letter it may bring upon my shoulders such a weight from the "up-to-date" bee-keepers that I shall need another round of ammunition; so I guess I had better stop and await results.

Fremont, Mich.

A MAMMOTH BEE-TREE.

By W. S. Walbridge.

Thinking you and your friends might have some curiosity to see what some of our beetrees look like out in this region I send you a photo of a real one, taken the day we cut it. You say you don't see any bees. Well, hardly; for they enter through a knot-hole 145 ft. from the ground. This monarch of the Washington forest is commonly known as Puget Sound fir, specimens of which often measure 15 ft. in diameter a few feet above ground. This one measured only 5½ ft. where it was cut off.

Auburn, Washington, May 24.



A WASHINGTON BEE-TREE.



ALFARETTA placed her hands upon Fred's shoulders and said, "My fairy mermaid whispered to me that you were in danger. My fairy said there was a bad man with a big knife, with blood on it—blood of many victims. It thirsted for yours. I came with my fairy mermaid and scared the man away. The man will die, die."

She said this in such a weird tone of voice at that weird hour that Fred became restive under her steady gaze, and he said, "Come, Alfaretta, the man has fled; you had better return home now. I will accompany you. Were you ever here before, Alfaretta?"

"Yes, Fred; papa and I, and sometimes my fairy and I, come here to see the bees fly with their gossamer wings."

Alfaretta led the way through the willows, following a blind trail. It was two miles by the river to Mr. Buell's; but by this short cut across the bend it was not half that distance. When they came to the river again, the path followed along the top of what was known as Buell's Levee. It was built between two slight headlands in order to prevent the overflow of several thousand acres of valuable land. It was at the upper end of this levee where Alfaretta helped Fred from his water bath when he leaped from the steamer Valetta.

The Buell residence was but a short distance beyond, and here Alfaretta, as if a very fairy herself, ran up the walk so lightly and rapidly that Fred was left far in the rear. A mocking laugh echoed back to him as he caught a final glimpse of her as she disappeared in the deep shadows of the house.

"Not much ceremony or sentiment about that parting," thought Fred as he turned and retraced his steps. He walked rapidly along the levee and across the bend, and was soon again in the deserted apiary.

The gloom along the river was in a measure dispelled by the rising moon; but even this good cheer did not lend much companionship. He had little fear that Dawson would appear again; and, rather than remain quiet and on the watch, and desiring to get away from the

place as soon as possible, he proceeded, by the kindly light of the moon, to take down the cabin and to remove the material to the river-bank. In one of his turns between river and cabin his shoe kicked up something that glistened in the moonbeams; and, picking it up, he shuddered as he grasped the cold blade of a large bowie knife. It had evidently been dropped by Dawson, in his flight. When Fred thought of Alfaretta's words, "blood of many victims, it thirsted for yours," the impulse was upon him to hurl it far into the river; but upon second thought he tossed it into a box with other "traps" to be removed. "Most remarkable," said he, as he paced to and fro in deep thought. "Truly wonderful that she should appear so silently at that particular moment; unaccountable that she should know all of these things. Surely this is a marvelous case of mind telepathy."

Fred continued his labors until every thing was upon the river-bank, even to the water-pipe through which he acted as proxy for McBurger's spirit.

The flat boat was brought from its hiding, and first his six colonies of bees were carefully loaded upon it. There was no tearing of sackings this time, and its attendant mishaps. The loading of the boat was completed just as the gray streaks of early dawn began to tremble over the eastern hills. When he came down stream it was Fred's intention to load the bee-fixings and then wait for an up-stream steamer to tow him to his destination. But he did not like to stay a minute longer than necessary, upon a spot of such unpleasant nature, and so near Dawson; therefore, as soon as loaded, the boat was pushed off; and by dint of hard labor, and keeping as much as possible out of the sluggish current, he made Buell's Landing in a couple of hours.

These good people were preparing to partake of their morning repast as Fred appeared at the door of their adobe residence. After the usual salutations a place was made for him at the table. Alfaretta, who was usually the first one up in the morning, had not yet made her appearance; and the unusual occurrence excited some comments between Mr. and Mrs. Buell. Fred said nothing then, however. The excitement of the night, and the need of food, led him

to attend strictly to that business first. He knew that, if he launched into a rehearsal of the unusual occurrences of the night, it would destroy the appetites of his friends, besides interfering with his own. He therefore mildly answered Mr. Buell's questions about bees, and was pleased to note that his symptoms of bee-fever were developing quite rapidly.

"Mr. Buell," said Fred, "I have one colony of bees on board that is in a different-sized hive from the rest. It is what is known as a regular Langstroth hive, while all of the other hives are of different size, both in body and frame. I will make you a present of that colony if you will accept it."

"Surely, surely, Fred, you are too generous. I should certainly like the bees for a study, and am willing to pay you for them."

all good and interesting; but the best for a beginner is known as the A B C of Bee Culture. The author, Mr. Root, of Medina, Ohio, also publishes a paper, GLEANINGS IN BEE CULTURE. In order to manage the bees properly you will need a smoker. I have one in my trunk, which is now on the way from Sacramento, and which I will show you how to use until you can send for one."

"But, dear husband," said Mrs. Buell, "you seem to forget what vicious insects you are bringing to the place. We shall all get stung, and you know Alfaretta may be greatly injured by them."

"Not the least danger," said Mr. Buell. "Alfaretta has been to the old deserted beech-ranch many times. She says the bees have angel wings, and she seems always to be upon



"HE WILL DIE—DIE."

"I have already received my pay, Mr. Buell," said Fred, "in your kindness to me when I came ashore here so unceremoniously and in such a plight."

"I performed only my duty to a fellow-being in distress," said Mr. Buell; "but if you insist upon leaving the bees, I shall think that my bread cast upon the waters at that time is returning in a few days, and with winged crumbs at that. I shall feel myself under many obligations to you; and now that I am to become a bee-keeper, is there not some book upon bee culture that I can get?"

good terms with them."

Fred had now fortified the inner man, and, calling up the episodes of the night, he said, "Mr. Buell, I had something of an adventure last night in which Alfaretta—"

"Sh—!" said Mrs. Buell, putting up a warning finger. "I think Alfaretta is coming from her room."

Then the old song was heard; and with the concluding refrain,

Let me to the wild winds hark,
And hear what they say to me,

she entered the dining-room.

"Why, Fred Anderson," she exclaimed, as she saw him, "the wild winds said to me this morning that you would be here for breakfast. And, papa," she said, "my mermaid fairy came to me in the night and told me to hasten away, for our Fred was in danger. The fairy led me to the old bee-ranch. I crawled—crawled as silently as a shadow—upon the old tree stump, and all the fairies in the river and the woods helped me to scream; and an evil man sprang out of the weeds, with a big knife in his hand, and he whined like a dog, and ran away; and, papa, he will die—die;" and she showed her teeth in that uncanny grin that the family were so used to seeing."

"There, dear Alfaretta," said her father, "you shouldn't let such things enter your head. You must have had horrid dreams in the night."

"If she has been dreaming," said Fred, "I also have been dreaming; for what she says is true." Then Fred rehearsed to an interested group of listeners the various phases of the night's adventure.

"Wonderful!" said Mrs. Buell.

"Inexplicable!" said Mr. Buell.

"Supernatural!" quoth Mrs. Buell.

"Yes," said Fred, "and I have had to pinch myself several times this morning to find out if I had feeling, and was in the land of the living."

"And I," said Alfaretta, "have had to spit snakes to see them crawl and squirm and squirm."

This remark caused evident pain to the parents, and they arose from the table. Mr. Buell and Fred were busy the next half-hour in locating the new one-colony apiary. The hive was placed some fifteen yards from the house, in a cosy nook beside the cypress hedge, and Mr. Buell felt himself nearly a full-fledged bee-keeper.

"And now, my good friend Fred," said Mr. Buell, "I will tie my boat in tow of yours and help you navigate your load to the Ghering ranch. The boat is an unwieldy thing, and I don't see how you brought it around the bend thus far."

"I had to work for it," said Fred, "and I have no doubt the same amount of labor would enable me to get over the remaining three miles."

Fred found the good strong arms of Mr. Buell a great help in the management of the boat, and in a short time his valuable load was moored at the Ghering wharf.

When Mr. Buell started for home in his own boat he said, "Now, Fred, to-morrow is Sunday; just run down to our place and cheer us up."

"I will, Mr. Buell, if I do not sleep all day," said Fred, with a smile.

The men on the Ghering ranch had just come in to dinner, and they were full of curiosity and questions; and Fred clearly saw that here

would be a few more candidates likely to be taken with the bee-fever.

He refrained from telling Mr. Ghering or the men of his adventure with Dawson. He had no Alfaretta to step in and corroborate his statements. He also thought that the men would look upon his story as brag, and, not wishing to appear in that light, he said but little about his night's work.

Mr. Ghering was getting so interested now in the setting-up of an apiary upon the bluff that himself, team, and all of his men turned in and helped to get the material from the boat to the bluff, half a mile away. So much help made the task short and pleasant, and Fred blessed the hour when he fell among such good neighbors. Matt Hogan was his foremost helper; and, said he, "Misther Fred, does yees bees ather thinking the loikes of me wud make a baa-kaaper?"

"I don't see any reason why you shouldn't," replied Fred. "To become a bee-keeper you must learn to take stings with equanimity."

"Take baa-stings with equal-nimity, is it?" said Matt. "Shore, Misther Fred, I don't loike them patent medicines at all at all; wouldn't it bees just as well to take the stings wid a dhop of whisky? I'm ather thinking it would betther suit the thraits of me char-ack-ter."

"Ha, ha! Matt," said Fred; "but equanimity means calmness, coolness, composure. I have heard of fellows who would court a bee-sting in order to get a drink of whisky; but a true bee-keeper must submit to stings, and not make a fuss over it."

"Oi see, Misther Fred; but me ould head bees so thick it would take a mule to kick new idaas into it. But I musht be lavin' yes, for there's Misther Ghering shoutin' fur me with energy enough to crack his liver, and me asittin' here with—with—aqualnimity. I wonder do I get it right, Fred?"

"That's it; you'll do," said Fred, with a smile, as Matt hastened away to the summons of the boss.

That evening the steamer Valetta came up the river, and, in sight of Ghering's Landing, gave the whistle three long toots. The men knew from this signal that the boat would pull up to the little dock, and hastened down to see what would land. It was what Fred was expecting—his trunk. The men made a very good substitute for a baggage transfer, and the trunk was safely deposited in the cabin.

A bee-smoker, honey-knife, queen-cages, and several other bee-fixings, were placed before the men for inspection. They had never seen such tools before, and were greatly interested in the explanation of their uses. But Fred did not spend much time in satisfying their curiosity. He untrunked clean clothing, and hastened to the river for a bath. It is needless to say that he slept soundly that night, and Sunday

morning found him greatly refreshed. The Ghering and Buell ranches were remote from church privileges; and the men, though not required to do ranch work, spent the day in mending or washing clothing, or in fishing.

Matt Hogan brought out his fishing-tackle that morning, and invited Fred to share in the pleasures and piscatorial results of the occupation. But Fred declined, and plainly told Matt that he did not believe in that way of spending Sunday. "Besides," said he, "I have promised Mr. Buell that I will drop down to his place to-day."

"Och! that's all very foine, friend Fred," said Matt, "for a young chap that's just from the East; but, loike the rist of us, yees 'll get over that in a few years. An' it's to Misther Buell's yee's will go." Then, in a confidential tone, "Is it the young lady does the attractin'? Och, now, Fred, yee's needn't blush; she's a foine lass but for the sthate of her brain. But, Fred, I'd not mind that in the laast. Me own lovely Biddy Malooney has these mintal aberashuns on occashuns, as all women do, Fred. But, by the name of the great Saint Patrick, it's the retainins to rason that fills me soul wid raptures. She's so baamin' wid her two eyes, so coy, so shwate! Och! it's too blissful fur me to entertain—ho-o-o-o!" and Matt ran off to his fishing at the top of his speed.

"Yes," said Fred to himself, "it's the returnin' to reason that would bring raptures to my heart and to the whole Buell family. Ah me! the bitterness of the conditions in this case, where the mental aberration is continuous, is too great to think of;" and Fred unconsciously uttered a subdued sigh, ho—o-o-o, and strolled over to the bluff and the bees. But he had promised to call upon Mr. Buell; and, after seeing that every thing was working harmoniously on the bluff, he secured a small boat and floated with the lazy current down the river.

All seemed to be quiet and fitting to the day around the Buell residence. The doors and windows were closed, which Fred thought remarkable, seeing it was a warm day. "I guess that's the way they have of spending Sunday," thought Fred, as he stepped lightly to the door and knocked.

There was a rustle within, and the door was opened just the merest trifle.

"Oh-e! Fred Anderson, come in quick," said Mrs. Buell, excitedly, and with nervous haste the door was opened a little further, and Fred was hustled in, and the door slammed so suddenly behind him as to catch his coat-tail.



SUGGESTION FROM A COMMISSION MAN ON THE KIND OF SECTIONS AND SHIPPING-CASES TO USE.

As you will remember, we have advocated the use of small sections for honey for some years, and now small sections are the standard size—so much so that any sections weighing over $\frac{3}{4}$ to 1 lb. have to be sold at a discount, and are about out of style entirely. We are advocating now the use of a wood-pulp board wrapper, or cheap carton, for we find the trade calls for honey without glass, but wants some protection from breaking in shipping. These cartons, or wrappers, can be procured at a low price, or about one-half per pound what honey sells for, thereby affording a profit, as dealers do not object to the weight of these wrappers as they do to glass.

We look for a good demand for honey; but the days of high prices are gone by; and the bee-keepers' honey that is the most attractive and most desirable will sell first and for best price, always, and the consumer is more fastidious every season.

A word about shipping-cases: Don't use a case holding over 24 combs (single tier), nor less than 20 combs.

H. R. WRIGHT.

Albany, N. Y.

THE HONEY SEASON IN AUSTRALIA.

Mr. Root:—Seeing you American bee-editors are such a happy family, visiting and complimenting one another, and, having a half-hour's leisure time on hand, I have thought perhaps it would not be out of place for myself, as the Australian editor, to have a "drop in," or "chip in" (whichever term is most suitable). So, please imagine the hand-shake, etc., completed, and straight we are into talk. Well, we have had a very bad time during the past twelve months, with our bees. Some eighteen months ago a very intelligent bee-keeper, who had carefully watched the blossoming of the eucalyptus, told me that the following spring would be a magnificent one, as nearly all the gum-trees (they are not annuals, but some blossom once in two years, some in three or four years) were due to be in bloom all together, and they were then budding for it. Alas, however! the drought, the cruel cold westerly winds, and the resultant bush-fires, dissipated all his anticipations, and the past year has been a honey failure right through these colonies. Not only has the honey-flow been a failure, but there have been many losses of bees and so many disheartened bee-keepers, that, should there be a good flow next year, there will not be a third of the bees to gather it.

If you would like to have any of your friends see a specimen copy of Gleanings, make known the request on a postal, with the address or addresses, and we will, with pleasure, send them.

I was getting somewhat fearful that a dry winter would be repeated this year, scarcely any rain having fallen for some seven or eight weeks; but a splendid mild rain has come, and I fancy a good clover flow is now assured in the spring.

I notice in your excellent journal you do not seem to know a great deal about alfalfa, or, as we call it here, lucerne. In this neighborhood it is extensively grown; but the honey from it, though beautifully sweet, is very thin—in fact, a stranger, not knowing what it was, would call it sweetened water. I have tried different ways of rendering it thicker, without success.

E. TIPPER,

Editor Australian Bee Bulletin.

West Maitland, N. S. W., May 15.

[Here is my hand in return. But we on this side of the big ball have had a good season. It will be your turn next.—ED.]

HIVES FACING EAST FOR WINTER.

Mr. Root:—The May 15th issue is just received. The *Straw* on p. 380, in which my name occurs, seems to need a little explanation, which may account for your bees facing north, south, east, and west, wintering equally well, while mine *perhaps* do not. The fierce wintry winds of ordinary seasons in this section make it necessary to give our bees special protection when wintered outdoors. I am in the habit of placing mine in rows with a space of four inches between hives, then boarding up in the rear about four to six inches from the hives. The space between the board wall and the row of hives and that between the hives in the row is then packed solid with maple leaves, fine aftermath, flax, straw, chaff, or sawdust. The front is left exposed. This makes an impenetrable windbreak; and, when facing south, on a clear day the combined heat of the sun without and the bees within raises the temperature at the entrance to 70, and sometimes 80° F., when the thermometer in the shade shows below freezing. On such days I have seen numbers of bees fly out and never return, being chilled as soon as they got a short distance from the hive. Of course, this can occur only when the sun is squarely facing the hive at midday. Those facing east get the benefit of a slight warming in the forenoon, long enough to get up and take a meal, or at least to turn in bed; and by noon the entrance is sufficiently shaded so that they will not be enticed by abnormal heat to sally forth for an airing. In my letter to Dr. Miller I mentioned only 12 hives that were facing east. I had another lot, of nine hives, that I had worked on shares last summer, which I had not seen since I packed them in the fall. They were packed facing east. I have examined them since, and found every one of them in splendid shape.

Of course, when hives are standing out where the winds have full play all around them it

makes very little difference which point of the compass they face. In this country all would be equally bad (none could be called good). Even chaff hives need additional windbreaks. Our coldest winds being from the northwest, and the hives being exposed in front, facing south or east seems an absolute necessity. I shall prefer facing east hereafter.

Centerville, Ia., May 18. G. B. REFLOGLE.

INTRODUCING DIFFICULT; MAD BEES AND BANANA OIL.

Can the Cyprian bee be obtained to-day? Two years ago I had them and found them splendid workers. I imported the queen through Mr. Benton. I should like to get them again.

The queen I purchased of you acted so strangely I report to you. I have kept bees 14 years, and never noticed anything like it. I took the old queen away and put yours with cork cut so the bees could eat through the candy and liberate her. The next day I looked at them. She was liberated, and walking around; but they at once balled her. I dropped the bunch in water, and recaged her; opened the hive two days afterward. She was out, but flew out of the hive, trying to get away. I clipped her wing after catching her, and put her back in cage. I repeated this at intervals every two days apart for a week, and each time the queen seemed to be frightened—tried to escape, and the bees at once balled her. Then I shut her up for a week with about 20 of the bees, in your box, let her out then, when they accepted her at last, and the hive is full of brood.

The bees are working on red clover—that is, Italians. This I never saw before.

Now I want to record a most peculiar fact never noted before. The bees' five hives are about 100 feet away from our factory. We manufacture acetate annyl, or banana oil, occasionally. Now, when we do so, though the bees are so far away, they become crazy with rage, and sting any thing in sight, even coming into the house and stinging us. Of course, I can offer no explanation. After we remove it they at once become normal.

Byers, Pa.

ROBT. W. RIDDLE.

[You can get Cyprian queens of Mrs. Atchley. See advertisement elsewhere.]

The circumstance you relate, of introducing the queen you got from us, is nothing so very unusual. Sometimes the bees will persistently refuse to accept a queen. This may be due partly to the fact that the queen acts timid, or because the bees are not disposed to accept a new queen, for reasons that are not known to us.

The behavior of the bees whenever you manufacture banana oil seems to be quite unusual, and I should presume the strong odor incites robbing; and yet I can not imagine why they should become so cross unless they had actually been robbing to some extent. Have any of our readers had a similar experience?—ED.]

Later.—The foregoing answer was sent to friend R., who replies:

THAT BANANA OIL AND THE CROSS BEES.

Contrary to your presumption, as above, the odor of the banana oil does not, so far as I can see (and I have noticed carefully), incite robbing. It simply enrages them, and it does so always at any time of the year when they fly. So it is hardly probable their crossness is due to robbing. We have also noticed, but to a less extent, that valerianate annyl and valerianic acid have the same effect.

ROBT. W. RIDDLE.

Byers, Pa., June 18.

HOW TO UNITE SWARMS.

How can I unite three swarms at once in swarming season to make box honey fast? I have lots of swarms at my place. I saw in a paper how a man did that, and I should like to try it if I knew how to unite them properly.

Gresham, Pa.

A. L. DILLINGER.

[Dr. Miller, to whom this was sent, replies:]

No trick at all to unite swarms. It's a good deal harder sometimes to keep them from uniting. All that's to be done is to hive a swarm in a hive in which another swarm has been hived. There will be no trouble about their fighting if both swarms are hived the same day, nor, indeed, if they are two or three days apart. If you have any choice as to queens, kill the poorer; but if you have no choice the bees will settle the matter to their own satisfaction without your paying any attention to it. If the swarms are small, there will be a decided gain in uniting; but if the swarms are large it isn't so advisable to unite. Unite two large swarms, and by the next spring you will have no more bees in the hive than each would have had if you had hived them separately.

C. C. MILLER.

ALFALFA IN MICHIGAN.

Inclosed I send you two stems of alfalfa, raised by my neighbor, Mr. Myers. He has about 1½ acres, about like the sample. It was sown the 17th of April, 1896, with oats. I asked when the ground was manured last. He said, "Not since I have been on the place, being 22 years," and now any one can find plenty of stalks 14 to 15 inches long.

C. H. AUSTIN.

Allen, Mich.

RAPE CULTURE.

I have a piece of rape which commenced to bloom in May, and the bees were humming on it, and, as usual, my stocks made a raid on it when they got an opportunity. I don't think Dwarf Essex would do the bee-keeper much good, on account of its not blooming the first year. With the common kind I find we can sow it in the fall or early spring, and get a crop of honey from it; then turn it down, and sow to buckwheat and get a good crop of the latter. Rape, when plowed in, makes a fine

manure, and lots of it; and the honey from rape is No. 1, and white.

JAS. PRATT.

Cumminsville, Neb.

AGAINST THE IMPORTATION OF APIS DORSATA.

Good for GLEANINGS! I am glad to see you have taken a decided stand against the costly importation of *Apis dorsata*, for I never could see that it would be of any earthly use to the bee-keepers of America or anybody else.

If I made that mistake on page 356, I owe an apology to the printer, to whom I had given all the credit of it. I meant to say "laying-worker eggs in worker-cells."

As to the design of the cover of GLEANINGS, it's all right as it is, and the cover of a bee-paper would hardly be complete, to my mind, without bees on the wing.

Reliance, Va.

BURDETTE HASSETT.

[The importation of *Apis dorsata* may not be so expensive after all. At the risk of being styled fickle I must say my views on the subject have undergone a revision since reading the article on page 527.—Ed.]

THE ABSENCE OF DRONES NOT PREVENTING SWARMING.

Friend Root:—On page 498 you express a desire to know of your readers whether the entire absence of drones will prevent swarming. With a laying queen it will discourage it to some extent, but will not wholly prevent it. With virgins it has no effect. We have had lots of swarms led out this season by virgins from colonies that had drones neither in nor out of the combs. Neither will the absence of a queen prevent swarming in every case. We have had two swarms this season to come forth without any queen whatever. One of the swarms was from a colony from which a laying queen had been taken two days before; the other from which a virgin had been removed one hour before.

CLEVELAND BROS.

Stamper, Miss., July 13.

DANDELIONS FOR HONEY.

Dandelions are quoted in all works on forage for bees as a great honey-plant. There is a great profusion of them this year, but I haven't seen a dozen bees on them this season. It was very dry all through April and May. Is that the probable cause?

GEO. L. VINAL.

Charlton City, Mass., June 15.

[Quite probably.—Ed.]

SWEET CLOVER AND SWEET-CLOVER HONEY.

Bees are still rolling in the honey from sweet clover. As to sweet-clover honey, I can say it is of a better flavor than any white-clover honey I ever ate.

G. E. NELSON.

Bishop Hill, Ills., July 20.

[Tastes may vary; and while I do not think the flavor quite equal to that of white, it is nevertheless first-class white honey.—Ed.]



PUTTING QUEENS IN TUMBLERS.

Question.—I bought a colony of bees whose queen's wings were clipped. When they swarmed I picked up the queen from the alighting-board and placed her in a clean common tumbler. The hives were changed, and, upon return of the swarm, the queen allowed to run in with the swarm, after which it was taken to its new stand. The next morning the most of the bees returned to the old hive, when I found the queen dead at the entrance. I also caught another queen and placed her in a tumbler. She also died while confined, which was about twenty minutes. A wire screen was placed over the tumbler to prevent her escape. What was the cause of their death? I do not think I injured either in handling.

Answer.—Were it not that I have known of many queens dying under similar circumstances, I would not take up room in GLEANINGS to reply to this question; but as it seems to be a common custom to place queens under tumblers, by beginners, if the loss of valuable queens can be saved by a few words of mine then it is my duty to give them. The first queen I ever lost was lost in just this way, I not understanding why it was not best to cage a queen under a glass dish, through which I could see the queen and know she was safe. The cause of the death of the first queen is not so apparent; yet it is my opinion that she was so impaired by the heat in the tumbler or by her struggles to get out that she died from the effects of one or both, during the night. When the bees come to realize her loss and their hopeless condition they did the wise thing, and that which their nature always prompts them to do—return home, where they have not been out of the hive more than 24 hours. The cause of the death of the second is quite plain for three reasons; the first and most common of which is, that the glass tumbler is allowed to stand in the sun, whose heat, through the direct rays, and by reflection also, soon becomes sufficient to destroy the life of any thing but a salamander. No one should be foolish enough to put a queen under a glass or tin dish, and allow it to stand in the sun for a single minute; yet the writer was once guilty of just such foolishness when he first began to keep bees. But our questioner tells us that he placed wire cloth over the tumbler, so that he was not so foolish as was the writer; yet he lost his queen just the same; and this brings us to the second reason why a queen should not be placed in any glass, glazed earthen, china, or tin dish. As soon as the queen finds she is a captive she

begins to try to get out, and this she can do only by climbing; and as she can not climb far on the smooth surface of any of the dishes spoken of above, she gets as far as she can and then falls back, only to repeat the effort time and time again, till she dies from exhaustion. The third reason is, that no queen will live any great length of time without food; consequently the bees are constantly feeding their queen, where they can do so. But the tumbler excluded their feeding her, unless she could get to the screen; and as she could not do this, she was liable to die from starvation as well as from exhaustion. The only proper cage in which to keep a queen is one made of wire cloth, or of wire cloth and wood; and it is better to have all such cages provisioned with queen candy. The bees will generally care for a queen all right where they have access to such a wire-cloth cage; but to be always on the safe side, I bore a hole in the inside end of the stopper, when it is always ready, no matter whether the bees can get at the cage or not, so long as this hole is filled with candy. Such cages are very handy to have during the summer season, and I have some in different places in the bee-yard so I can get one at a moment's notice.

REPLACING AGED QUEENS.

Question.—I have several old hybrid queens that are past their usefulness, and I wish to replace them. How and when shall I proceed to do it?

Answer.—First as to the when: This can be done at any time; but I find that the bees supersede more queens just after the main honey-flow for the season is over than at any other time of the year; consequently, where I wish to supersede queens for any reason I do it just after the basswood-blossoms drop off, as the most of the honey in this locality comes from basswood. Now as to the how. Unless a change in variety of bees is desired, I would advise the beginner to leave this matter of superseding queens to the bees, as they will make fewer mistakes, if this matter is left to them, than the smartest bee-keeper in the land—especially where there is any Italian blood in the bees. But if we wish to change the breed of bees, then of course the apiarist must do it. The plan I use most, and like best, is to start queen-cells just before the basswood honey-yield closes, when the bees are in the best possible shape to raise extra good queens; then two days before these cells are about to hatch I go to the colonies having queens which I wish to supersede, and hunt out the queens and kill them. Two days later the nearly mature cells are placed in queen-cell protectors and placed in these colonies; and my experience has been that, in nineteen cases out of twenty, young, thrifty, vigorous queens will be found laying in colonies thus treated, fifteen days later. If we

do not wish to raise our own queens, we can send away for them; and to make sure that none shall be killed in introducing (and as a few days without a laying queen in any colony is of little consequence at this time of the year), the old queen should be killed nine days before we expect the new queens to arrive. When they arrive, open the hive and cut off all queen-cells, when the queen is to be introduced by letting the bees eat the candy away till the queen is liberated, according to instructions generally accompanying the queen.

Another way, which is usually successful, is to remove the old queen in the forenoon of a pleasant day, and at night, after the bees have all returned home, give them a little smoke; and when they are filled with honey allow the new queen to run in at the entrance. Do not open the hive for four or five days, and you will rarely fail.

[I indorse all friend D. has to say on queens in tumblers. Perhaps it might be well to add that, in our experience at least, queens will not stand direct rays of a summer sun very long without injury. Many have died for us in queen-cages when left exposed to the hot sun.]

We too have tried the last method of introducing with good success. The secret seems to be in letting the bees alone a few days after the queen runs in at the entrance.—ED.]



L. E. W., Vt.—We regret to say that the Langdon non-swarmers does not work as it was at first expected by its friends, and we have therefore taken the matter concerning it out of our A B C book. It has been abandoned as a failure by every one now, I think.

L. D. Ga.—In the case of the Heddon short method of transferring, in which two-thirds of the bees are drummed out of the old hive, leaving one-third in the hive set to one side, there may be and probably will be a queen reared in this latter portion, providing you do not yourself destroy all the queen-cells until after the brood is all capped over. At this time they would be hopelessly queenless, and could be united at the end of 21 days.

M. F., Col.—I can hardly explain why your bees apparently dwindle away, without knowing more particulars. It may be due to the fact that they are queenless, or that they have some disease. If not queenless, and if they are perfectly healthy, the trouble may be owing to a poor queen. If there is such a one present, get rid of her and give them a frame of hatching brood and a frame of unsealed brood, and let them raise a queen of their own; or, better yet, introduce to them a queen that you can get

of any of the breeders who advertise in these columns.



SOLAR WAX-EXTRACTOR FOR RENDERING OLD COMBS.

Some seem to think there is no better way to render than the submerged-sack method; but, all things considered, the solar is far ahead of this method. The first saving is in time. I save all odds and ends, burr-combs, hive-scrappings, and bottom-board litter, and put all in the solar. The very blackest old comb you may have—though not yielding as much wax as the meltings before-mentioned—will give a bright wax from the solar; but if put through water it will be very dark.—R. C. Aikin, in *American Bee Journal*.

ANOTHER BEE-STING CURE FOR RHEUMATISM.

For nearly a week previous to last Wednesday, nearly all the pain I suffered was in my instep. On that day I was sitting in a neighbor's apiary (he has my bees on shares this season) to watch for swarms while he was absent. As a swarm was issuing I hobbled along to secure the queen. I put my "game" (lame) foot, on which I had a black sock and a low slipper, near the entrance of an adjoining hive. In a jiffy three or four bees had given my painful instep as many hypodermic injections. On the instant I thought of what some had recently said about his sciatica and bee-stings, and I let the stingers alone until I had secured the queen. I was almost immediately relieved of the pain in my instep, and in a few minutes I could stamp my foot quite firmly on the ground without pain, which I had not been able to do before for several weeks. Last night, pain in the same instep was a little annoying; and if it doesn't behave itself in good style in the future, more bees will have to be sacrificed for "suffering humanity."—Dr. A. B. Mason, in the *American Bee Journal*.

BEE-KEEPERS NOT SUFFERING FROM OVER-PRODUCTION OF THE HONEY-PRODUCT.

I have read with much interest the article of Mr. Doolittle on page 163, with reference to over-production, but I can not say that I was greatly surprised at the range of prices of honey from the year 1874 to the present—a period of 22 years. It is true that the difference between 23 to 30 cents per pound obtained in 1874, and 13 to 15 cents per pound obtained at present, is very large, but in my opinion the trouble is not in the over-production of honey, but in the increased production of other luxuries and necessities of life, combined with a contraction of the currency of the country. It is perhaps true that there is more honey produced now than in the year 1874, but not to a greater extent than the increase in the population of the country; and this being true, everything else being equal, there should be no very great difference in the prices or demand for honey. But every thing else is not equal. There has been a great increase in the production of the fruits and sugars, and these combined, at their present low prices, to a great extent, have supplanted honey, and form the principal table-luxuries of the people.

It is a rule, founded in economy, that the human family will use and subsist upon the cheaper commodities, if the cheaper commod-

ities will meet the ends in view. And this rule applies with unusual force at a time like this, when there is a stringency in money matters.

If Mr. Doolittle will reflect for a moment, he will remember that there has been a general decline in prices of nearly all kinds of products, since 1874. Wheat, corn, pork, beef, potatoes, and other farm products have declined to an extent that is almost alarming, and we should not be surprised to see honey in the wake.

And there is still another rule, founded in economy, that has its influence on the prices of honey. Honey is a luxury; and when men are in the straits, financially, they curtail expenses, and the luxuries are the first to be dispensed with.—*H. F. Coleman, in Am. Bee Journal.*



THE date of the North American has been fixed at Oct. 7th and 8th, and the place is Lincoln, Neb. For further particulars see Convention Notices elsewhere.

It may be a surprise to some, but we have four of those large Boardman solar wax-extractors in use in our apiary constantly. They are used principally to work over and refine wax dirt, sweepings and scrapings from the wax-room floor. It is astonishing to see what nice wax they will make out of what appears to be dirt, and very dirty dirt at that.

THE Jardine bee-escape, illustrated on p. 428, does not work. We have been trying it thoroughly, and I regret to say that the hinges to the little doors became so badly propolized after a few days' use as to become inoperative. Come to think of it, hinges of any kind in a bee-escape have proven failures, because bees will propolize working joints. The Porters have, in adopting slender flexible brass springs, hit the nail on the head. So far the Porter, with us, is in the lead.

HERE is a letter more like what we have been receiving than the one referred to protesting against saying so much in favor of sweet clover:

Dear Ernest:—I see in GLEANINGS for July 15th that some one has made complaint about your speaking favorably of sweet clover, claiming that it is a noxious weed. Now, I wish to say that I hope GLEANINGS will not give sweet clover a black eye, for I do not see how any one can call it a noxious weed, as stock will eat it, and it is such a fine honey-plant. We must plant something that will yield honey, as the honey-producing wild flowers are getting to be very scarce.

Please keep the favorable paragraphs on sweet clover going right along in your journal.

Slaghts, Colo., July 23.

W. H. PRICE.

Yes, indeed, we propose to keep up the agitation if the will of the very great majority is any criterion to go on.

IMPROVEMENTS IN BEE CULTURE.

SOME time ago it was asserted that no very great improvements might be expected in the line of bee culture; that we had about attained perfection. If I am any judge of apicultural progress there are still some great advances yet to be made over our old methods. Just as soon as we drop into that rut, with the feeling that we have "got there," and don't need to try to better ourselves, just so soon shall we fail to make progress. I can not think we have reached perfection in any thing relating to bee-keeping yet. I believe, first of all, we need and shall have foundation with deep cell-walls and thin base; that along with this improvement will come at least partial control of swarming. I believe still that there is a chance for improvement in styles of brood-frames; and there is still something yet to learn as to the best size of hive.

A QUEER BUT A GOOD SEASON.

THIS season is peculiar in several respects. To begin with, every thing started out much earlier than usual. Fruit-bloom showed up quite perceptibly in the brood-nests—something it has not done for some years. Basswood came on almost a month earlier, with great promise. It did, in fact, begin to yield nectar before white clover (it usually *follows*); but the quantity of blossoms was a very imperfect index of the *amount* of honey. Then we waited for white clover; but instead of honey from that source there was a fair flow from sweet clover. Now that this is going to seed, white clover near the latter part of this month (a month late), owing to these copious rains, is beginning to show itself everywhere. Honey is coming in again, and being stored. How long this will last, or what we may expect next in this season of contraries, it is hard to say. During this month we have drouths as a rule; but *now* the ground is as wet and soaked as in the spring. The roads are muddy, and the bicycle is at a standstill. This is almost unheard of in Rootville during summer.

REDUCTION IN FREIGHT RATES ON EXTRACTED HONEY IN FLORIDA.

THE following letter from W. S. Hart speaks for itself:

Mr. Root:—Kindly announce, through the columns of your magazine, that, through the efforts of Mr. W. J. Jarvis, of the Florida East Coast Line, the committee appointed at Atlanta "to secure a reduction of freight rates on honey" have succeeded in securing a reduction of the rate on extracted honey to that of 6th class, which is the rate charged for syrup, over all lines in Florida. I feel quite confident that this reduction could have been secured over all the lines of the Eastern States had both the committee and bee-keepers generally brought more pressure to bear at the meeting in Washington, as suggested by me through GLEANINGS. As it is, it will be quite a boon to honey-producers of this

State, and stand as one good result of the Atlanta bee-keepers' congress.

W. S. HART,

Hawks Park, Fla.

Chairman of Com.

As Mr. Hart intimates, I see no reason why the North American or the Union, when it shall be reorganized, may not be able, by continual hammering, to get as good legislation for the whole country. If there is any place where the trite but old adage applies, "If at first you don't succeed, try, try again," it is here. There is no reason in the world why honey should not be classed as syrup. Of late years it has been sold at nearly the same price—so near it that it ought to go at the same rate.

AMALGAMATION, AGAIN.

I BEG pardon for referring to this old subject again; but it is rapidly reaching a point where I firmly believe it will solve itself. Here is what Mr. Brodbeck has to say:

Friend Root:—I notice that you indorse Mr. York's suggestion for a vote on the amalgamation question. Now, while I am not opposed to an expression on this subject by the members of the Union, yet I am inclined to believe that, if we take this action, and the majority should favor amalgamation, it would be binding. Your proposition of converting the B. K. U. into a distinctive national organization would then fall to the ground. Now, do you think it would be wise to risk this? The state of the case as it stands at present resolves itself into one of two propositions: The perpetuation of an international association, by the combination of two, or the utilization of the one (international) in the construction of a national, or, in other words, either a national or international association. Then, again, why should this limited membership of the Union be given the power to decide a question of such vital importance to the whole bee fraternity? Those who are not members of the Union can not vote on this question, and yet we propose acting on a subject which is of as much importance to them as to ourselves. Now, if we desire to enlist their future interest in our proposed new organization (whatever that may be), would it not be wise for us to act in such a way as to inspire an interest in every bee-keeper in the United States at the very beginning? If we desire to make it an exclusive organization, it is not necessary to take these things into consideration; and unless we act wisely the result may be the opposite of that which we desire. It has been my intention to write an article for GLEANINGS, summing up the various propositions presented, as the result of my article on a national, etc.

GEO. W. BRODBECK.

Los Angeles, Cal., July 11.

In view of what Mr. B. says, I do not believe it is at all necessary for the Union to go to the expense of taking a vote. Let each association paddle its own canoe. If one of them (to carry out the figure) goes over the falls because it is not able to hold its own, let it go. So far as I am concerned, I believe it is best to give up the idea of amalgamation, and make, as I have said before, the Union what we want it to be. By this we do away with the idea of "marrying

the two associations," and "the poorer one receiving the dower of the other."

DRAWN COMBS, AGAIN.

THE following letter just at hand, commenting on the editorial on page 538, has just come to hand:

When reading what you have to say of "drawn combs for the production of surplus honey," I was moved to write a few lines. I have in former years read articles wherein the writer claimed that foundation was better than drawn combs. This statement surprised me, as my experience was quite to the contrary. I think if I could have all drawn combs for the sections, to supply all my bees, it would add at least 100 per cent to my honey crop. I use a Given press to make foundation, and have been longing for one with which I could make foundation with cells $\frac{1}{2}$ inch deep. I hope (as you say) that the time may not be far distant when such foundation can be made. Give me drawn combs for brood-frames or sections every time. Of course, for sections they must be clean and white; but for brood I care not if they are 20 years old.

Nappanee, Ind., July 21.

L. A. RESSLER.

A good deal was said in the last July *Review*, indorsing drawn combs also. The editor, in commenting on what I said, gives this substantial indorsement:

Full sheets of foundation are accepted more readily than starters; and partly drawn combs, leveled down *a la* Taylor, more quickly still. So says GLEANINGS, and GLEANINGS is right.

Mr. Ressler thinks he could add 100 per cent to his comb-honey crop providing his bees did not have to draw out foundation. When I said I thought we could add a *half* to the honey crop I thought I was putting it strong enough so that some would challenge the statement; but I am not sure that friend Ressler's estimate is very far out of the way.

For some time I have known that the Germans were using a much deeper foundation than we do here in America. One of our customers in that country particularly specifies that his mills shall turn out cell-walls at least $\frac{1}{8}$ of an inch deep. This made the whole thickness, including both sides and the base, from $\frac{1}{4}$ to $\frac{3}{8}$ inch. We tried some of this wax, and found that the bees accepted it very readily; but at that time, owing to the large amount of wax wasted, I came to the conclusion it was a rather expensive way to get comb; but, as I said in our previous number, I have confidence to believe that some of our native-born inventors will get up a foundation having very light side walls $\frac{1}{4}$ or $\frac{1}{2}$ inch deep, with a base as thin as the natural. When the problem is once solved, we shall be making one of the greatest steps in advance in the production of comb honey that has ever been made. In the mean time it goes without saying, that Taylor's comb-leveler, a device for leveling down partly drawn-out sections, is a big thing, and should be used by every comb-honey producer.

OUR HOMES.

Ho, every one that thirsteth! come ye to the waters; and he that hath no money.—ISA. 55:1.

For years I have been talking and writing more or less about pure water. On my wheel-rides I have rejoiced on finding a spring, especially if it were one of soft water. Again and again have I enjoined upon the friends where I have visited, that they should thank God for their beautiful drinking water. I remember especially the springs of soft water and the wells of Florida. While at friend Keck's, near Bowling Green, they told me the drinking water seemed to them just like water from melted freshly fallen snow—snow-water they called it. Well, while looking at that great spring near the town of Thompson, Geauga Co., O., described elsewhere, it seemed to me as if we *must* have soft water on our own premises at the Home of the Honey-bees. We have an abundance of rain water, it is true; but it is a very difficult matter to keep rain water in the summer time so that it shall remain as pure and wholesome as the water from a running spring. By the way, do you ever think how hard a matter it is to produce a *real* spring artificially? In many of our public parks, and at the Soldiers' Home, in Dayton, O., they have "manufactured" springs; and I quickened my steps as I caught sight of one of them; but when I stooped down to drink from the cup hanging near, what a disappointment! The water was carried in pipes, and let out through the rocks. It was very good water compared with the water of our modern cities; but it was not the spring water of the country, *at all*.

I have told you about the spring on our own premises; but it is not *soft* water—not by considerable. It is very nice and cool on a hot day; but even with my present tiptop health I should hardly dare to drink as much hard water as I crave on a hot summer day; besides, hard water never quenches my thirst—I mean it never satisfies, for in a little time I become more thirsty still. If I keep drinking this water (laden with the salts of lime and other chemicals) pretty soon there is a rumper in the digestive apparatus. From the age of four till I was sixteen I lived in Mogadore, Summit Co.; and our drinking water came from a soft-water spring at the base of the sandy hills. How often have I craved a drink from those refreshing waters near my childhood home! You have all read the story of David when he longed for a drink of water from a well in his native town of Bethlehem, then in possession of the Philistines; and you remember how he poured it out on the ground, reckoning it as the blood of the three mighty men who broke through the ranks of the enemy in order to get it for him.

When I first commenced my wheelrides some years ago I visited most of the noted springs in Medina Co.; and I asked, through our county papers, for information in regard to the nearest soft-water springs. I did not find any nearer than about five or six miles; and I have actually ridden that distance several times just to have a drink of spring water. Is not cistern water all right when the cistern is properly made, the water filtered, etc.? Yes, it will do very well if you boil the water, then filter it, and cool it in a refrigerator. This is considerable trouble; and even then if it stands very long exposed to the air at a summer temperature it will soon contain forms of animal and vegetable life that can be detected by means of a microscope. Do you tell me that spring water, as it comes right from the rocks, also contains microbes? I know some people talk

that way, and some would-be scientists; but it is not true. I have handled some of the best microscopes to be had, and I could never find a trace of organic matter, either animal or vegetable, in cold water just as it issues from the rocks. Water from a well is all right providing enough of it is taken from it every day to keep up a steady running stream at the bottom. A well that stands still, or one that is allowed to fill up so that the water *stands*, is not the thing for people to drink from. It becomes more or less *stagnant* water. Better water your horses and cows at the well where you get your drinking water for the household; better still, have a windmill to keep pumping it so as to let off the surplus water. This will give you the conditions of a running spring. I do not say that other waters may not be as good as the waters from a running spring; but I think the chances are in favor of the latter. I am sure I am sound in regard to the matter, for I had quite a talk with an officer belonging to the Ohio State Board of Health, only a few days ago, and he said my ideas on the subject of pure drinking-water were sound and correct.

About a year ago somebody told me there was a well at our gristmill, nearly a mile away, that furnishes soft water. At first I had so little faith that I did not pay much attention to it. Finally I visited the mill, and saw the stream of water that is pumped daily to supply their boiler. It certainly tasted very much like soft water. I carried a little pailful of it home to let Mrs. Root see whether it would really "wash." I had carried her so many samples of water that I thought were soft, she was becoming incredulous. I detected a little sarcasm in her smile as she took the water and reached for a piece of soap. She expected, as a matter of course, that it would all curdle, like the many samples I had brought before; but to her great surprise and astonishment it made a beautiful suds. She tasted of some of that remaining in the pail.

"Why, this is not soft water to the taste; but as sure as you are alive it washes most beautifully. Why, it actually seems as if there were a little borax, or something of that sort, added to make it suds still better than rain water."

I too decided that there was a little taste of something in the water, different from pure soft spring water, and we boiled some of it down. There was a little trace of a whitish powder; but it was beautiful water to drink or to wash with, notwithstanding. I interviewed the men at the mill. They said the water never made any scale on the flues of the boiler at all. Only one set of flues had been in the boiler since they put it in place, ten years previously; and the expense for repairs since that time had not been *ten cents*. During that time we have paid out for flues and for repairs toward a *thousand dollars*. In fact, I have said again and again that I would *give* a thousand dollars in a minute for a spring of soft water of sufficient volume to supply our boilers and other wants. Many of the friends where I have visited have smilingly told me that I might have one of their springs, and welcome, if I could dig it up and move it to Medina; but, of course, I could not undertake it. Why not drill some *deep* wells and see if some soft water can not be found? Why, dear readers, since we have been on our present premises we have dug *four* wells down to the surface of the rock. We have also drilled down deep into the rock in at least three other places. The water is always hard—some of it so terribly hard that, when it was spattered on the windows, and dried there, it looked almost as if some white-wash had been put on, on account of the large

amount of salts of lime contained in the Medina waters. Sometimes we have thought it was hardly fit to water plants with—that is, if the water dried up on the leaves.

Well, after I arrived home from Thompson, Ernest commenced again on a theory that he had held for some time; namely, that we could get water like that at the gristmill if we would drill one more well on the *south side* of Champion Brook, on our own premises. The principal cause of his fresh enthusiasm in regard to the matter was that the town had just sunk a well near the gristmill, for public waterworks, and they had struck the very soft water we so much coveted. I finally consented, although I rather preferred sinking the well close to our buildings. The people of our town, however, had a sort of theory that one would have to go south of Champion Brook to get the soft water. I became acquainted with the well-drillers, and greatly enjoyed watching and assisting them in their work. They cleared off the surface of the rock down on the creek bottom, and drilled a hole large enough to take a 5½-inch well-casing, down to the depth of about 40 feet. The casing was driven down, and with a sand-pump they removed all the water so I could look down with a looking-glass and see that the well was empty of water. They had cut off all the waters that came out of the rock above that point for about 40 feet. The apparatus is managed by father and son. Their names are Hollenbeck & Son, West Farmington, Trumbull Co., O. When they were ready to drill again, the old gentleman remarked:

"Mr. Root, I wanted you to see for yourself that all the upper *hard* water was actually shut off. We are now going to drill again; and when we strike the next water *it will be soft*."

I hardly need tell you that I had been asking that the great Father above would reward our labors. It was not more than an hour or two after that time when my old friend said:

"Mr. Root, here is your soft water."

The pump was put down, and for half a day a stream nearly the size of my arm was turned into Champion Brook—bright, sparkling, pure soft water—or, at least, soft enough to drink, to wash with, or for any thing else. Of course, there was rejoicing all over our premises, and the next step was to provide proper machinery for pulling the water up from its depth of 40 feet, and sending it up still 20 feet higher, and uphill to the factory. Said I:

"See here, boys; it will cost us more to rig up machinery to get this water to the factory than it will to sink another well right up *by* the factory; and I have faith enough to believe that this same vein of soft water may be found anywhere in this vicinity by shutting off the upper veins of limestone waters, just as our friends have been doing here."

The old gentleman and son both indorsed my reasoning, and begged to be allowed to try their hand at getting the same kind of water close by our engines and boilers. Dear friends, it has been done. They made their calculations, and drove their tubing down into the rock to a depth of 63 feet. Then they drilled about 7 feet further and struck a hard light-colored rock that hardly yielded to the blows of the drill, even though the latter weighed something like a ton. Pretty soon we heard the joyful news once more, "Here is your soft water!" The pump was put down, and the muddy water was run into the sewer until it became clear, then we turned it into our big cistern. To test the volume, a common wooden pail was held under the end of the spout of the pump. In just *ten seconds* by my Waterbury watch the pail was running over. The next ten seconds it was full

again, and so on. Crowds gathered around to taste the delicious sparkling beverage. Nothing could be clearer; nothing could be purer. Washbowlsful of snowy soapsuds, made right from our new cold well water, attested its softness. Some of the incredulous would go to the other wells and get a bowlful just to try the difference. Since that time, about a week ago, I often wake up in the night and thank God as I think of that beautiful stream. Three hundred barrels a day for use in our boilers, to cook with, to drink, or to dispose of as we choose! Do you not agree with me that it is one of God's most precious gifts? As the stream will be running whenever our engines move, there is no need of anybody drinking warm or stale water. It is cold enough so nobody cares for ice, and it is so near at hand that pails from the different apartments can be filled "in a minute" I was going to say; but, bless your heart, it does not *take* a minute—only *ten seconds*, and you can keep getting a pailful every ten seconds every hour in the day if you want it.*

What has all of this to do with you at *your* home? Why, my dear friend, it seems to me quite likely that, when we learn the secret of cutting off the unpalatable waters from above, we may, by artesian wells, in many localities, have just the kind of water we want. The whole secret, it seems to me, consists in cutting off and keeping away the water we do *not* want, until we reach the point where we find that which we *do* want.

Our text has something to say about "no money." You may say these deep wells cost a great lot of money. Yes, they do cost something; but when the whole town unites in paying the expense of getting good water for the town, the burden falls but lightly on each person. Our town is planning to do this very thing; and when we come to compare the expense of pure water compared with the cost, first and last, of beer and other intoxicating drinks, well may the prophet say, "And he that *hath no money, come*." Once more: Do not modern developments teach us that God's gifts lie all along our pathway? This wonderful new agent, electricity, has been just as near our homes ever since the world began as it is now; but we have not had the faith and courage until even the last few years to reach forth and take it. So with spiritual blessings. Bunyan, in his wonderful book, the Pilgrim's Progress, tells of a man who spent his life in raking up straws and trash with a muck-rake; yet all the time a shining angel held above his head a golden crown; but he would not drop the muck-rake even to reach up and take the crown as a free gift. Was that simply an allegory? Perhaps so; but I believe it teaches us a truth. Oh may God not only help us to avail ourselves of the pure water that may have been waiting for ages for us to tap the stream and draw for the health of these physical bodies, but may he help us in a like manner to tube off or cut off the evils that come of themselves, that we may enjoy to the full the purifying influences of communion with the Holy Spirit! My good friend the Rev. A. T. Reed, of whom I spoke in my last, has recently paid me a visit. He went through our crops of potatoes that I have told you about. Said I:

"Dear brother Reed, it has not been an ex-

* This seems all the more wonderful when we consider that, within 40 feet of this very well, there is an old one that goes down into the rock at least 80 feet deeper, and yet this has always given us *hard* water. The explanation must be that it is made hard by allowing impure upper waters to go down and mix with it.

pensive work to keep this field of potatoes thus clean and free from weeds, because I took such great pains to have a thrifty potato-plant on every bit of the ground where there is room for a plant to grow. The weeds gave up long ago because there was not room for them. They have not made me any trouble at all."

Mr. Reed at once took up the thought, and replied to the effect that the greater part of the evil and wickedness and crime in this world might be *forestalled and kept out of existence* by letting a healthy growth get a good start in the minds of our children when they are young. Cut off evil, and crowd it *back and away* by keeping their young lives full of something good and pure and useful. Cut off the contaminating influences of evil habits in childhood, as we sent down our iron tubing to cut off the contaminating influences of water from above. Carry them safely past the scums and slums until they reach the prompting influences of pure and good manhood and womanhood. Thus shall be ushered in the reign of the new heavens and a new earth.



It was a warm summer afternoon when I got off the cars at Painesville and mounted my wheel. All about Painesville there are beautiful smooth firm roads. In a little while I overtook a gentleman and lady also riding their wheels. There was a long steep hill, and I decided to walk up it, supposing the young people would *ride* up. They, however, decided, as they had already ridden thirty or forty miles, to walk up also, and we chatted pleasantly as we looked over the beautiful surrounding country. By the way, how wheeling does promote sociability! Although we were entire strangers, we chatted as freely as if we had always been acquainted.

Just before I reached the Storrs & Harrison grounds I saw a beautiful nursery of what I call cottonwood-trees. They told me they were sycamore. The trees were in straight rows, perhaps four feet apart. Each tree was remarkably like its neighbor—same height, same size, and all straight; and the growth was so vigorous that there was not a weed nor even a blade of grass—nothing but sycamore-trees. They told me afterward that these trees had no cultivation whatever, and at that time they needed none. As there seemed to be acres of them I asked them where they were going to sell them all. They said they were sold already, and only a year ago they did not have enough to supply the demand.

A little further on I stopped at one of the great warehouses. I was courteously received, and told that, in a little time, one of the members of the firm would show me over the place. Just back of the great warehouse I saw some men working with plant-beds. The beds are covered with glass, even during hot sunshiny July days. More than that, they were forcing cuttings with bottom heat produced with stable manure; but, mind you, they did not allow the sun to strike the glass at all. The glass sashes were simply used to confine the damp air requisite for making cuttings take root. I can not remember what it was they were propagating; but it was some florist's plant, and there seemed to be thousands and thousands of them. Now, the most interesting part of this

work was the way in which they kept the sun from the glass. Posts were set up on which cotton cloth was stretched, the cloth being high enough to clear the heads of the workmen. On the south side it hung down just far enough to prevent the sun from striking the glass. On the lower edge of this south side the cloth was attached to a pole, so as to roll it up during cloudy days or when the wind threatens mischief. It made a very nice pretty place for the men to work; and I at once decided that this arrangement was just the thing exactly for growing Grand Rapids lettuce during the summer time. During the months of July and August a great many other plants will do better if partly shaded. The west side of our creek-bottom land is shaded in the afternoon by some maple-trees; and year after year we get some of our best crops where the plants are shaded by the maple-trees every afternoon; that is, the trees throw a shade along about 3 or 4 o'clock. I supposed the roots of these great forest-trees would be detrimental to the plants on that side of the grounds; but the shade seems to do more good than the roots do harm.

By this time a man was sent to show me through the greenhouses, 29 in number. The greater part of them, however, are filled with roses or rose-cuttings. Many of them contain exotic plants, just such as I saw growing while in Florida; and for getting the best results, the temperature of many of these houses is kept at 120°. Although I was interested in plant-growth, at this high temperature I soon began to have a great longing to get out into the open air. Ninety degrees in the shade was quite refreshing after spending ten or fifteen minutes in a temperature of 120. Then we looked over the grounds outside. I suppose a florist would know more about the greater part of their stock than I do. Let me digress a little.

A few days ago, while on a wheel-ride to the home of Matthew Crawford, the great strawberry-grower, I saw a little group of plants on a small rise of ground near the berries. They were golden-banded Japan lilies. Imagine a flower as large as a small-sized pitcher, decorated with the brightest colors in Nature's own handiwork, until one could hardly help exclaiming, "Even Solomon in all his glory was not arrayed like one of these." I sat down on the ground beside the plant, and enjoyed the sight as one enjoys beautiful strains of music. There were three flowers in full bloom on the plant, at the time; and I told friend Crawford I believed I would invest five dollars if I could have that plant on our lawn at home. Well, at Storrs & Harrison's there was nearly a quarter of an acre just like it, in all their beauty. I do not know but the one single plant gave me more pleasure than this brilliant show of bloom. So many were almost overpowering. A little further on there was a square plot or bed made by an ornamental forage-plant. It looked like a patch of sunshine that had somehow become entangled among the leaves of the plant. Again and again I looked off somewhere else, and then turned my eyes on this gorgeous piece of illumination. Talk about blue lights and spectacular scenes produced on the stage! This little plot of Dame Nature's own handiwork was worth more to me than any thing that art can produce in that line. My guide told me they had all these things for sale, but that I would have to wait till fall before planting my bulbs of golden-banded *Lilium auratum*; and this other foliage-plant, of which I have forgotten the name, could be planted out next spring, and would stand several years outdoors, winter and summer. Then we tested some of their new fruits, especially the raspberries and gooseber-

ries; but although they send out great quantities of these things they do not produce any thing like the quantity of fruit as at the Ohio Experiment Station. With the crowd of workmen they employ they say it is hard to keep perfect specimens. Then I passed through one of their great frost-proof combined cellars and warehouses, where stuff can be secure from frost, and be packed for shipment. This building has heavy walls that not only keep out frost, but preserve the requisite amount of dampness to handle nursery stock to the best advantage. A little further on I saw an apparatus, to be drawn by a horse, that blows air-slacked lime or any other kind of dust all over the crops where it is desired to keep off insects or for other purposes. The blast of air is produced by a fan that is moved by pulling the thing along—the wheels of the machine furnishing the motive power to drive the fan. Acres of trees or plants may be dusted at a very insignificant cost by horse power.

Just as I was getting to be a little tired, our veteran friend Mr. Storrs himself took me in his buggy, and we went out across the broad acres. Mr. Storrs commenced work in this locality toward fifty years ago. Their grounds now extend over something like one and a half miles along the lake shore, nursery stock growing clear up to the edge of the water. Did you ever hear of roses growing outdoors by the acre? Well, there were not only rosebushes by the acre, but at one place we saw the most beautiful roses that imagination ever conceived, so it seemed to me, and literally acres of blossoms. It seemed almost like enchantment. I exclaimed, "Why, Mr. Storrs, do you mean to tell me that such roses as these are left to

—'blush unseen

And waste their sweetness on the desert air?"

At the prices that such perfect buds and blossoms are usually rated, there is a heap of honey going to waste every day."

"Yes, Mr. Root, these beautiful specimens are really in one sense wasting their sweetness. The trouble is, the fashion nowadays is such that everybody who has a rose must have one with a long stem to it; and these long stems are worth more to us for the purpose of budding than the flowers themselves. We tried selling them with short stems; but it was not the fashion, and so we gave it up. See here. That crowd of men off there are budding roses. Before we use any of the wood we want to be sure it produces the right kind of flowers. So these blooms are really tests. When we are satisfied with the product, then we can let our men take the cuttings from the plants, you see."

May be I have not got this thing quite right, but that was my understanding of the matter. The men work along in a row side by side. Every little while one stoops down and does something to the plant at his feet. Then he rises up while he cuts the bud for setting in the next plant, and so on.

"Well, why don't these men get down on their knees, as they do in budding peach-trees?"

"Because we have found they will do more work, and do it better, by standing up."

"They do not work by the piece, then, as they do in budding peaches?"

"No, sir. The work they are doing is of too much value, and the importance is too great; for every plant must produce blossoms true to name. The men all work by the day, and they are all trained experts in the work."

Pretty soon we saw acres and acres of peach-trees. Why, it seemed as if the whole wide world could hardly use so many. My companion told me that nearly all of them were already sold at wholesale, a whole acre of trees fre-

quently going to one man. Like the sycamore-trees, each peach-tree was exactly like its neighbor—a model of symmetry, beauty, and luxuriance. All were budded, and very plain labels that could be read at a distance proclaimed to the passerby what each tree should produce.

These beautiful grounds are mostly undrained. We saw them doing their work as we passed by. Large quantities of stable manure are used to get the requisite fertility, and they are now getting excellent results by turning under cow peas, soja beans, rye, and various other green crops. The land is up to a high degree of fertility; and whenever a farm crop is put in to get the requisite rotation, or to produce feed for their own large numbers of horses, great crops are secured. Many of their workmen have cottages scattered over the grounds, so they will not have too great a distance to travel. In one part of the grounds I believe they have a chapel, and they endeavor to have their people attend religious worship as much as possible.

This great business has been built up by studying the real wants and needs of their customers, and not by planning to make a selfish deal every time they get an order. I have several times of late sent to Storrs & Harrison for certain things, telling them to fill the order if the plant would probably do as the catalogs claim it will; and a good many times I receive answer that they have the plant or shrub in question, and that they would be glad to sell it, but that the claims made for it are so much exaggerated they think best not to fill the order. And this reminds me that, a little over a year ago, I wrote with considerable enthusiasm about our Rocky Mountain cherry, the bush no larger than a currant, that bears great quantities of beautiful luscious cherries. Dr. Miller, in a "Straw," cautioned me in regard to writing up the plant in that manner before testing the fruit. Well, last season the frost scorched all my cherries. This year the bushes are pretty well loaded again, and the cherries are certainly as large as the morello. They look just like sweet black cherries, and have a cherry-stone inside of them; but instead of being a delicious fruit, as the catalogs claim, they are not fit to eat; in fact, they are not to be compared with the common wild cherry. They are handsome to look at, but they are neither sweet nor sour. The man who sold these bushes for 50 or 75 cts. apiece, and let his customers watch and care for them for two or three years until they came in fruiting, and then be disappointed, *ought* to fail in business; and I do not think it is very much of an excuse to say he took the word of somebody else for it. The man who puts out a catalog should grow the plant *himself* on his own grounds before he booms it as a great acquisition of modern times. To get out of it by saying the description he gave was put in quotation-marks, and was simply the *originator's* claim, is, in my opinion, a very poor excuse. If anybody else has a Rocky Mountain cherry that is fit for anybody to eat, I should like to hear from him. We have three bushes, and the fruit of all is just exactly alike.

Now, while Storrs & Harrison keep posted in regard to all novelties in the line of nursery stock, they will tell you the honest truth about these things, even if they fail in making a sale as a consequence of telling the truth; and the consequence of telling the truth straight for fifty years is this colossal business which they have built up. We have fruits and plants all around our home, purchased of Storrs & Harrison during the past ten or fifteen years; and every tree, as it comes into bearing, proves

to be exactly what it was bought for. We take pleasure in referring our readers to their advertisement on page 442 of our issue for June 1. □

The town of Tnompson, Geauga Co., O., is situated on a sandstone rock. About half a mile west of the town this rock suddenly drops down from 50 to 75 feet. At some points the drop is perhaps 100 feet. This is what is called the "Ledge." It extends north and south from five to ten miles. There is no river at the bottom of this sudden fall, as one might expect; but the valley, as it were, stretches off in a level plain miles away. A large portion of this sandstone rock on which the town is situated is composed of white sand and white gravelly pebbles the size of beans and peas. The water from the wells is pure and soft; and after every one of my wheelrides I just delighted in drinking it again and again. I spoke briefly several times on the Fourth of July; and in one of my talks I told the people that, if they had never thanked God for their beautiful pure soft water, they should commence on that Fourth of July tendering him thanksgiving and praise for this wonderful gift. Somebody told me if I wanted to take a wheelride of three or four miles out in the country I could find a soft-water spring big enough to run a gristmill winter and summer. I lost no time in making the trip, and was amply repaid. A gristmill and sawmill stand near the highway. By following the race along which the water comes perhaps half a mile back in the lots, I found the spring gushing out of several fissures between the hills. A dam has been put across so that the water that runs nights and Sundays may be stored up for use when grinding. I estimated that the stream was large enough to fill an ordinary stovepipe with a pretty good velocity; but some of the people thought my estimate of the quantity was pretty high. This, too, was beautiful soft water.

Three or four miles west of this spring I found a bee-keeper whose name was Root. I commenced to apologize for making him a visit on the Fourth of July; but when I told him who I was, you ought to have seen his face light up. I looked over his crops, saw his Thoroughbred potatoes, and pointed out to him one hill of Craigs that must have got there by some mistake. One can tell the Craig at first sight by its rank green foliage, standing up almost as straight as a cornstalk until it gets to be so tall that it topples over. Then we sampled the Red Astrachan apples, which were just getting ripe on the Fourth of July. He has one colony of bees that had gathered about 80 lbs. of honey stored in sections thus early in the season.

I was interested in a patch of artichokes—perhaps an eighth of an acre. Friend R. says they have been a success with him as feed for pigs. One of his breeding sows got her entire living from this patch of artichokes for a good many weeks. In fact, she had nothing else whatever. She not only laid on flesh, but got so fat they feared it would be detrimental to her maternal appointments; but she and the little pigs came around all right. You know I am great on having either machines or domestic animals that get along without expensive superintending. Well, pigs in artichokes will harvest the crop, prepare the ground, and do the planting for the next crop; all you have to do is to just turn them in and let them manage. Mrs. Root seemed as much pleased as her husband, and we had biscuit, butter, and honey for supper.

Monday morning I was up a little before daylight in order to catch the 6-o'clock train at

Painesville, 13 miles away. A good breakfast awaited me, notwithstanding the earliness of the hour. Just as I was finishing it, and thinking what a delightful time I should have spinning through the country before it was fairly light, what should I hear on the roof but the patter of great big raindrops? As I noticed the moon shining while I was dressing I could hardly believe my ears. In a little time, however, it slacked up, and I ventured forth. I made barely one mile when more rain drove me into the coal-shed of a country schoolhouse. After a rest of twenty minutes (no refreshments) I tried it once more, and made another mile. Then I rested in a stable. Nobody was up, and the dog was inclined to think it incumbent on him to wake up his master; but after I explained to him that I was *orthodox*, and did not want to steal the pony, he seemed satisfied. Do dogs really know whether a man means mischief or is just getting in out of the rain? Painfully and laboriously I made another mile, and stopped because I saw a very neat and tidy little apiary. The owner did not appear to be very sociable so early in the morning, and did not know that he had ever heard my name. The section boxes in his corn-crib, where he stood shelling corn to feed his chickens, were of our manufacture, notwithstanding.

I pushed on through the mud. When the latter did not cling to the rubber tires until it threatened to cover even the spokes of the wheels, I got along tolerably well. Some kinds of soil will do very well to ride over just after a rain. Then there are other kinds that will not do a bit; and the two kinds may both be found in going half a mile. I wanted to make that train, and so I kept pushing ahead, getting off occasionally to roll off the load of mud by putting my thumb and finger around the rubber tire just as it rises from the ground. May be you have learned the trick. Finally the sun came out, and things began to improve. Now, would you believe it? half of my journey was done when I reached a point where it had not rained a drop, and I had a most grand ride over the beautiful graded and graveled roads that one finds within four or five miles of Painesville in almost any direction. When I was told by the ticket agent that I had 20 minutes to spare before train time he looked at my wheel and gave a "Whew!" "Why, look here; you don't mean that it has been *raining* where you came from this morning?"

Then several others gathered around me and could hardly believe my statement that there had been such heavy rains only ten miles away. My wheel, however, corroborated what I said. By the time the train came up I had, by the help of a long narrow strip of rag, cleaned off the nickel and enamel, so the wheel looked very presentable. So many other wheelmen gathered around the baggage-car that the agent said, "Look here, boys, there is such a lot of you I think I will have to ask you to lift your own wheels up into the baggage-car yourselves." We were quite glad to do this. Only two or three of the dozen wheels presented had struck the rain as well as myself.



WORMS ON SHADE-TREES AND OTHER TREES.

Ever since the leaves came out in the spring we have been rejoicing over our basswood-